## REMARKS

Claims 1-16 are pending in the application. In the Office action dated April 19, 2007, claims 1-16 were rejected. In view of the remarks below, Applicants respectfully request reconsideration of the rejected claims.

***Rejections under 35 U.S.C. § 103***

Claims 1, 2, 10-12, 14, and 15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Otsuka et al. (JP 10-312591) in view of Naka et al. (U.S. Patent no. 5,935,331) and Morley (U.S. Patent no. 4,724,296).

Claims 3, 13, and 16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Otsuka et al., Naka et al., and Morley as applied to claims 1, 2, 10-12, 14, and 15 above, and further in view of Kotoyori et al (JP 2000-36134, U.S. Patent no. 6,228,203)

Claims 4, 5, 7, and 8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Otsuka et al., Naka et al., and Morley as applied to claims 1, 2, 10-12, 14, and 15 above, and further in view of Hayashi et al. (U.S. Patent no. 5,102,629).

Claims 6 and 9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Otsuka et al., Naka et al., Morley, and Kotoyori et al as applied to claims 3, 13, and 16 above, and further in view of Hayashi et al.

*Prima Facie Obviousness*

In order to establish a *prima facie* case of obviousness, three basic criteria must be met. There must be some suggestion or motivation in the prior art itself to modify the reference or to combine the reference teachings. The prior art must also provide a

reasonable expectation of success. Additionally, the cited references must teach or suggest all the elements of the claim. Neither the motivation to combine the references, nor the reasonable expectation of success may be provided by Applicant's own disclosure.

*The Claimed Subject Matter*

The rejected claims are directed to an apparatus for bonding two optical disc substrates together using a liquid adhesive. The apparatus includes an adhesive-supplying nozzle that is a first electrode, and a second electrode in contact with or in the vicinity of the surface of the optical disc substrate which is opposite to the adhesive-supplying nozzle. The adhesive-supplying nozzle is connected to both a terminal of an electric power supply and a ground potential, and the second electrode is connected to another terminal of the electric power supply, so that during application of the adhesive an electric field may be generated between the adhesive-supplying nozzle and the optical disc substrate. By applying the electric field at the time of supplying the liquid adhesive from the adhesive-supplying nozzle onto the optical disc substrate, the formation of voids in the adhesive can be minimized (as indicated at page 3, lines 1-5 of the specification).

*Otsuka et al.*

The Otsuka et al. reference is directed to the prevention of the formation of bubbles when joining optical disc substrates using adhesive. The process of Otsuka et al. includes securing a first disc substrate to a lower rotary table, and applying a UV-curing adhesive to the substrate while it is rotated at a relatively slow rate. The upper disc substrate is wetted by the application of a small amount of the adhesive, and

it is lowered toward the first substrate. Upon making contact with the adhesive on the first substrate, the adhesive on the second substrate facilitates the even wetting of the substrate by the adhesive.

*Naka et al.*

The Naka et al. reference is directed to an apparatus and method for forming thin films. The apparatus of Naka et al. includes an ink jet head having a plurality of nozzles for discharging a liquid, a substrate, and a means of rotating the substrate, so that the liquid can be applied to the substrate by the plurality of nozzles.

*Morley*

The Morley reference is directed to a multi-electrode plasma generator, where each electrode is placed within a vacuum vessel, and held at an electrical potential relative to the vacuum vessel walls that is less than the breakdown potential of the vacuum medium. However, the potential difference between two of the electrodes is selected to exceed the breakdown potential of the medium, and therefore a plasma can be formed between the electrodes, without the creation of spurious discharges to the walls of the vessel.

*Kotoyori et al.*

The Kotoyori et al. reference is directed to a disk bonding method and system. The system includes a first element for forming an annular adhesive layer on an upward facing surface of a lower disk, a second element for forming a dotted adhesive layer on a downward-facing surface of an upper disk, and a third element to bring the upper and lower disks together until the annular adhesive layer and dotted adhesive layer are brought into contact with each other so as to prevent the occurrence of bubbles.

*Hayashi et al.*

The Hayashi et al. reference is directed to a field formation apparatus that includes a pair of electrodes for electric field formation, where at least the surface of one of the electrodes includes one member of the group of borides, carbides, and nitrides of transition metals of Groups IVa and Va of the Periodic Table.

Claims 1, 2, 10-12, 14, and 15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Otsuka et al. (JP 10-312591) in view of Naka et al. (U.S. Patent no. 5,935,331) and Morley (U.S. Patent no. 4,724,296).

The Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the adhesive-supplying nozzle in Otsuka et al. as an electrode that cooperates with a second electrode adjacent to the lower mounting support as shown by Naka et al., such that the apparatus is capable of uniformly applying the adhesive as a thin film.

The Examiner further asserts it would have been obvious to one of ordinary skill in the art at the time the invention was made to include in Otsuka et al. as modified by Naka et al. a connection between the liquid coating nozzle and a ground potential as shown by Morley for well-known safety reasons.

Applicants traverse the rejection.

Claim 1 recites an apparatus that includes an adhesive-supplying nozzle that is a first electrode, a second electrode that is in contact with or in the vicinity of the surface of an optical disc substrate opposite to the surface which faces the adhesive-supplying nozzle, and an electric power supply for generating an electric field between the second electrode and the adhesive-supplying nozzle. Furthermore, the adhesive-supplying

nozzle is connected to a terminal of the electric power supply and a ground potential, and the second electrode is connected to another terminal of the electric power supply.

As shown in Fig. 11 of Naka et al., nozzle 133 is connected to power supply 134. Nozzle 133 is not, however, connected to a ground potential. In addition to omitting a recited element of claim 1, this deficiency in the apparatus of Naka et al. has a significant effect on the utility of the resulting device.

Solution 130 within nozzle 133 of Naka et al. is necessarily supplied from a solution storage tank. Accordingly, the solution within the nozzle 133 and the solution within the solution storage tank are necessarily in fluid communication, and therefore electrical contact, with each other. With reference to Fig. 11 of Naka et al., nozzle 133 is connected to only power supply 134. Again, nozzle 133 is not connected to a ground potential.

When a potential is impressed on nozzle 133, the solution 130 within the nozzle electrode 133 is charged to a positive electrical potential. The solution 130 that is released is therefore attracted to the coating object member 131 by an electrostatic attraction. This is made clear by the plot of Fig. 12 of Naka et al, which plots the state of discharge of the solution in terms of the relationship between resistivity and applied voltage. In particular, the abscissa axis represents the resistivity of the solution (see col. 14, lines 37-50). Because the liquid has a measured specific resistance, solution 130 must be charged by the liquid-coating nozzle electrode 133.

As discussed above, the liquid in nozzle 133 is in fluid communication and electrical contact with the solution in the solution storage tank. The solution in the storage tank is therefore also electrically charged, and because the solution within the

solution storage tank is charged, the stability of the solution is not maintained. In the absence of a stable solution, the effect of applying a voltage to the solution decreases, and the solution is no longer stably released from the nozzle 133.

In contrast, the apparatus of claim 1 recites "the adhesive-supplying nozzle is connected to ... a ground potential," and so the adhesive within the adhesive tank for storing the adhesive is prevented from being exposed to a potential charge via the adhesive in the adhesive-supplying nozzle. The stability of the adhesive in the storage tank is therefore maintained, the effect of the voltage impression can be heightened, and the adhesive can therefore be stably released from the adhesive-supplying nozzle.

To reiterate, the apparatus of Naka et al. fails to reflect "the adhesive-supplying nozzle is connected to ... a ground potential" as recited in claim 1, which is advantageous because the effect of the voltage impression on the supplied liquid can be heightened, permitting a more stable release of the adhesive from the adhesive-supplying nozzle. Neither Otsuka et al., Naka et al., nor Morley teaches or suggests the advantageous effect of connecting the adhesive-supplying nozzle to a ground potential.

In addition, Applicants suggest that the combination of Otsuka et al., Naka et al., and Morley is improper. While Otsuka et al. and Naka et al. are directed to disc manufacture, the Morley reference is not reasonably pertinent to the problem addressed by the present invention. In particular, Morley does not discuss the manufacture of optical discs. Morley relates to a plasma generator for generating electrical plasma in a vacuum, and does <u>not</u> relate to an apparatus for supplying an adhesive from an adhesive-supplying nozzle to an optical disc substrate. One of ordinary skill in the art would not be led to the Morley reference in an attempt to improve optical disc

manufacture, particularly where the prior art fails to disclose the nature of the problem to be solved thereby.

Even if Morley has an effect in which safety is maintained because the apparatus is connected to a ground potential, Morley does not have the effect in which the effect of the voltage impression can be heightened, nor does Morley teach or suggest that an adhesive may be stably released from an adhesive-supplying nozzle that is connected to ground potential. Furthermore, if simple safety concerns were the basis for setting a portion of the apparatus to ground potential, Applicants suggest that safety concerns would dictate that the larger and more exposed support for the disc substrate should be connected to ground, rather than the relatively less accessible adhesive-supplying nozzle.

Applicants suggest that, even in combination, Otsuka et al., Naka et al., and Morley fail to recite each and every element of claim 1.

Applicants also suggest that there is insufficient motivation or suggestion to combine the Otsuka et al., Naka et al., and Morley references.

In view of the above remarks, Applicants respectfully suggest that the Examiner has failed to establish the *prima facie* obviousness of claim 1 under 35 U.S.C. § 103. As claims 2-16 depend from claim 1, Applicants suggest claims 2, 10-12, 14, and 15 are similarly patentable over the cited references for at least the reasons provided above. Applicants therefore request the withdrawal of the rejection of claims 1, 2, 10-12, 14, and 15 under 35 U.S.C. § 103.

Claims 3, 13, and 16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Otsuka et al., Naka et al., and Morley as applied to claims 1, 2,

10-12, 14, and 15 above, and further in view of Kotoyori et al (JP 2000-36134, U.S. Patent no. 6,228,203).

As discussed above, Applicants suggest that even in combination, Otsuka et al., Naka et al., and Morley fail to establish the *prima facie* obviousness of claim 1. Applicants suggest that for at least the reasons provided above the combination of Kotoyori et al. similarly fails to establish the *prima facie* obviousness of claim 1, and therefore fails to establish the *prima facie* obviousness of claims 3, 13, and 16.

Applicants respectfully request the withdrawal of the rejection of claims 3, 13, and 16 under 35 U.S.C. § 103.

Claims 4, 5, 7, and 8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Otsuka et al., Naka et al., and Morley as applied to claims 1, 2, 10-12, 14, and 15 above, and further in view of Hayashi et al. (U.S. Patent no. 5,102,629).

As discussed above, Applicants suggest that even in combination, Otsuka et al., Naka et al., and Morley fail to establish the *prima facie* obviousness of claim 1. Applicants suggest that for at least the reasons provided above the combination of Hayashi et al. similarly fails to establish the *prima facie* obviousness of claim 1, and therefore fails to establish the *prima facie* obviousness of claims 4, 5, 7, and 8.

Applicants respectfully request the withdrawal of the rejection of claims 4, 5, 7, and 8 under 35 U.S.C. § 103.

Claims 6 and 9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Otsuka et al., Naka et al., Morley, and Kotoyori et al as applied to claims 3, 13, and 16 above, and further in view of Hayashi et al.

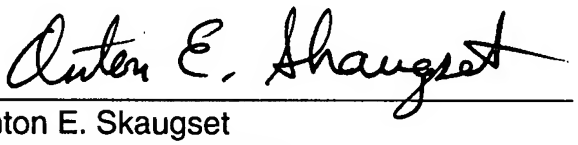
As discussed above, Applicants suggest that even in combination, Otsuka et al., Naka et al., and Morley fail to establish the *prima facie* obviousness of claim 1. Applicants suggest that for at least the reasons provided above the additional combination of Kotoyori et al. and Hayashi et al. similarly fails to establish the *prima facie* obviousness of claim 1, and therefore fails to establish the *prima facie* obviousness of claims 6, and 9.

Applicants respectfully request the withdrawal of the rejection of claims 6, and 9 under 35 U.S.C. § 103.

It is believed that the subject patent application has been placed in condition for allowance, and such action is respectfully requested. If the Examiner has any questions or concerns, or if a telephone interview would in any way advance prosecution of the application, please contact the undersigned agent of record.

Respectfully submitted,

KOLISCH HARTWELL, P.C.



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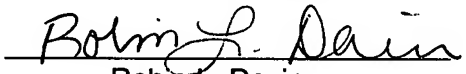

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